

What is claimed is:

1. A variable wavelength dispersion compensator, comprising:

an angular dispersion unit giving angular dispersion to a plurality of the wavelengths of input beams; and

a surface-shape variable mirror unit returning the angle-dispersed beams to the angular dispersion unit, a surface shape of which can be transformed, wherein wavelength dispersion is given to the beams by reflecting the beams from the angular dispersion unit on the surface-shape variable mirror unit, inputting the reflected beams to the angular dispersion unit again and outputting the inputted beams from the angular dispersion unit.

2. The variable wavelength dispersion compensator according to claim 1, wherein said surface-shape variable mirror unit further comprises:

a mirror face unit reflecting beams; and

a plurality of stage units setting a mirror face to a desired shape, which contacts a back surface of the mirror unit.

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3. The variable wavelength dispersion compensator according to claim 2, wherein said mirror unit is a thin plate, the elasticity of which can be changed.

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4. The variable wavelength dispersion compensator according to claim 1, further comprising a branching unit branching the angular-dispersed beams into a plurality of beam groups with a plurality of different wavelengths, wherein the plurality of said surface-shape variable mirror units are provided and each surface shape is set so that wavelength dispersion can be compensated for each branched beam group.

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5. The variable wavelength dispersion compensator according to claim 4, wherein the plurality of said surface-shape variable mirror units are incorporated into one surface-shape variable mirror unit, which has a surface transformed in a two-dimensional direction so that each branched beam group can be received on a part of the surface and prescribed wavelength dispersion is given to the branched beam group.

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6. The variable wavelength dispersion

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compensator according to claim 4, wherein said branching unit is a diffraction grid.

5 7. The variable wavelength dispersion
compensator according to claim 4, wherein said branching unit is a VIPA.

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